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Stanistreet's Lines. — John F. Stanistreet, Esq., of Liverpool, has ruled some stars on glass and steel, the rays of which, some fifty in number, consist of bands of parallel lines two thousand to the inch. The intersection of these different lines gives very curious and beautiful optical effects under the microscope.

Microscopy in Paris. — We learn from the "Quarterly Journal of Microscopical Science" that Hartnack is back at Paris, just as he was before the war. He is about to establish works at Potsdam.

NOTES.

"A very large audience, consisting of the teachers in Boston, assembled early in November, in the new hall of the Massachusetts Institute of Technology to attend the opening of a series of lectures upon Methods of Instruction in Natural History.

As it was the first time this hall had been publicly used, Professor Runkle, President of the Massachusetts Institute of Technology, opened the proceedings and introduced, in a few appropriate words of welcome, Mr. Thomas T. Bouvé, President of the Boston Society of Natural History.

Mr. Bouvé stated that the society which he represented had for many years by its publications and meetings, but more especially by the display of natural objects in its Museum, appealed to the public mind and endeavored to cultivate a taste for science in the community. The Teachers' School of Science was a very appropriate supplement to the other operations of the society and had been in contemplation by several officers of the society for some time past. The present active beginning, however, was due to the generosity of one of these gentlemen who had furnished the pecuniary means for making the necessary collections and paying the lecturers. The enterprise, however, was considered as an experiment to be worked out rather than talked about, and he would therefore without further delay introduce Prof. W. H. Niles, who would deliver the first course on 'Physical Geography.'

Prof. Niles made a few preliminary remarks upon the necessity of teaching science in the schools in a practical manner, and showed that the projectors of the enterprise had no intention of forcing theories upon the minds of the teachers. They simply wished to help, to join with them in their efforts to educate the young, and to place before them such information as their special acquirements in different branches of knowledge would justify.

He then proposed an elementary exercise which should embrace the definition and general relations of natural objects, proposing to teach it as if the audience were a class and he the teacher.

This was unanimously assented to, and he led them, by a series of carefully worded questions, from the definition of what a material body is to the classification of objects into artificial and natural, inorganic and organic, and the subdivision of these into mineral, vegetable and animal.

In a few concluding remarks the lecturer spoke of the general incompleteness of definitions, but also showed that they were essential to the analytical method of teaching, and, when used with the careful exclusion of all doubtful facts, of great use in classifying natural objects.

This principle was amply illustrated by the objects on the table. It was really surprising to witness how much might be done with such simple things as a piece of marble, an apple, a plant, a squirrel, a flask of water, etc., in giving a child the fundamental ideas that govern the distribution and classification of the three great kingdoms of nature. The spirit manifested by the teachers present was evidently very gratifying to the lecturer, and he referred to it twice. If it had not been for their willingness to enter into and help work out the questions, the lecturer would not have succeeded. As it was, so large an audience, about five hundred teachers, was probably never before successfully handled by one man in object teaching. All who are engaged in this experiment, as it was called by the President of the society, have reason to congratulate themselves upon so auspicious a beginning." — *Boston Transcript.*

We learn from one of the committee that they have long recognized the hopelessness of attempting to work upon the public at large by means of the usual lecture system. However effectual this may be as a means of cultivating a taste for natural science, it certainly does not produce any very definite or encouraging results. Collateral study and practical work with specimens are essentials without which mere lectures are very barren to the majority of minds. They have therefore concluded that their efforts should be concentrated upon the public system of education, and here they have been nobly seconded by the teachers, who have come forward to the number of seven hundred and fifty, while an average of nearly six hundred have actually been in attendance at the lectures, which have been given by Prof. W. H. Niles upon physical geography. On this subject the whole class of teachers can be instructed at once, but in subsequent courses upon mineralogy, zoology and botany, it is proposed to divide them into smaller classes, so that each teacher will be able to use specimens and carry out completely the system of object teaching. The committee hope by so doing, and furnishing the schools, wherever practicable, with type specimens, to meet the immediate wants of teachers, and by introducing them to practical laboratory work, to induce them to pursue for themselves some special branch of natural science. The committee have been greatly assisted in their efforts by the masters of the public schools, especially the chairman of the masters' committee, Mr. Paige, and also by the superintendent of public instruction, Mr. John D. Philbrick. The experiment owes its support at present entirely to the generosity of one of the committee, Mr. John Cummings.

The aims of the committee (consisting of John Cummings, Esq., and Professors A. Hyatt and W. H. Niles) who have projected the entire movement, are wholly practical and will be to a large extent governed by experience. They intend if possible to meet the daily wants of the teachers now, and in the coming winters of 1872 and '73 to develop such a plan as will insure the permanent introduction of the teaching of natural science in the public schools of Boston at least.

We congratulate the Boston Society on so successful an inauguration of science teaching, and believe that it has assumed the most practical form by which teachers can be fitted to teach the rudiments of science. We look forward to similar courses in other cities in connection with the local scientific societies, and thus a defect in our system of education will gradually be remedied.

We may divide the German Museums into — (1) Those founded with the intention of exhibiting objects of Natural History to the general public; and (2) those established for educational purposes. There are not many of the former class. To it belong the Museums of the formerly independent "Reichsstädte," Hamburg, Bremen, and Frankfort-on-the-Main, one of the Vienna Museums, and the collections in Stuttgart and Darmstadt. There are others like that in Mayence, but they have more the character of well-arranged local country museums. Although originally founded for the purpose of exhibiting curiosities, they soon took another position by receiving objects in which the general public takes a very limited interest (as, for instance, botanical, geological, or mineralogical specimens), and by systematically collecting materials for the purposes of purely scientific research. In several instances the scientific results were sufficiently important and extensive to form not only a nucleus but the sole subject-matter of distinct periodical works, such as the "Annalen des Wiener Museums," the "Museum Senckenbergianum," the "Abhandlungen des Hamburger Museums." The Frankfort Museum became the head-quarters for the Zoology of North-eastern Africa; Bremen possesses a unique collection of African birds, celebrated not only for the great number of standard specimens, but also for their beautiful state of preservation. In the Vienna Museum particular attention was paid to European fresh-water fishes; and travellers like Natterer, Russeger, Kotschy, enriched it with collections so numerous that the Austrian naturalists have been engaged in their examination till within a very recent period. The Stuttgart and Darmstadt Museums are now celebrated for their valuable collections of South-German fossils, worked out by G. von Jäger, Kaup, and others. In the museums of this class great attention is paid to the local flora and fauna, recent and extinct. Thus the Stuttgart collection may be mentioned as a model of what a museum ought to be; besides a most complete series of the plants and fossils, it contains a collection of the animals of Suabia in all stages of growth and development and of variation, in a perfect state of preservation and particularly attractive from the life-like manner in which the specimens are mounted.—*Nature.*

The Middletown Scientific Association, accompanied by the members and friends of the Springfield Association made an Excursion to Rice's Cut, Reed's Gap and Hamilton Mountain, on Saturday, October 28th. On this excursion, the party numbering about one hundred had an opportunity to observe some of the most remarkable phenomena connected with the trap rocks of the Connecticut Valley, and enjoyed one of the finest views in the vicinity.

The Secretary of the Boston Society of Natural History, Rev. J. A. Swan, died late in October. He was much beloved as a man, and his scholarly attainments and zeal for natural history, made him an efficient officer. His successor has not yet been appointed.

It is stated that Prof. Raphael Pumpelly has been appointed State Geologist of Missouri. Another report states that Prof. Swallow received the appointment. Which is correct?

Prof. E. Claparède, the eminent zoologist of Geneva, died on the 2d of June, at Sienne, Tuscany. He had not yet reached his fortieth year. By his anatomical and systematic works on the lower animals, especially the worms, and illustrated with his facile pencil, he had attained the front rank as an investigator, and his death is a serious loss to science. His principal works were on the Evolution of Spiders, Studies on the Infusoria and Rhizopods, the Formation of the Egg in Nematode Worms, Studies on Acarina, and his splendidly illustrated works on the anatomy of the Worms. He was a pupil of Johannes Müller, and besides a high order of talent, must have been endowed with great powers of application to have produced so much.

We are glad to announce that the Chicago Academy of Science have resumed their meetings and that the members are resolved to go on with their good work at once. At the meeting on Nov. 14, Col. Foster read a paper on the "Colorado Mountains" which will be printed in our January number. Mr. Walker in behalf of the Trustees of the Academy made an informal announcement to the meeting that the Academy would have left from the fire about sixty thousand dollars with which to rebuild, and trusted that a lot would be secured near the lake shore.

BOOKS RECEIVED.

Das Innere von Grœnland. Von Dr. Robert Brown. 4to. 1871.

Beretninger om Norges Deeltagelse i den almindelige Industri — Udstilling og Kunst — Udstillingen i Stockholm 1866, *og Paris* 1867. 8vo. Christiania, 1869.

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Om Skuringsmærker Glacialformationen og Terrasser samt om grundfjeldets og sparagmitfjeldets mægtighed i Norge. I. Grundfjeldt. Af Prof. Theodor Kjerulf. 4to. Kristiania. 1871.

Kart over Christiania Omegn med Randtegninger. 1871.

Le Neve de Justedal et ses Glaciers par C. de Seue [with map and photographic plate of glaciers]. 4to. Christiania, 1870.

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Meteorologiske Iagttagelser det Sydlige Norge, 1863-6. Folio. Christiania, 1867.

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On a Method of Registering Natural History Observations. By Alfred Newton. 8vo. pp. 11, with sample sheet. Norfolk, 1870.

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American Journal of Conchology, *Vol.* 7, *No.* 2. Philadelphia. [Nov. 24, 1871.]

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Bulletin Mensuel de la Societe d'Acclimatation. 2e. Tom. 8. Nos. 9, 10. Oct., Nov., 1871. Paris.

On the Connecticut Valley Glacier, and other Examples of Glacier Movement along the Valleys of New England. By James D. Dana. 8vo. pp. 12. New Haven, 1871.

Plantas Toxicus do Brasil. These de Concurso. Do Dr. J. M. Caminhoa. 8vo. pp. 186. Rio de Janeiro, 1871.

Quarterly Journal of Microscopical Science. No. 45. Oct., 1871, London.

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Journal of the Franklin Institute. Nov.

Amer. Journal of Science and Arts. Dec.

Land and Water. Nos. for Oct.

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La France Scientifique. Nos. for Nov.

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Le Naturaliste Canadien. Nov.

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The Field. Nos. for Nov.

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Newman's Entomologist. No. 97, Nov.